# THE EVALUATION OF MAIL AND TELEPHONE TECHNIQUES IN SNOWBALLING STUDIES

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## Introduction

Research in building universe lists was carried on at the Statistical Laboratory, Iowa State University, under a cooperative agreement with the Research and Development Branch, S&RD, in 1966-68. 1/ Results indicated the snowballing procedure may be useful as a technique for developing fairly complete lists of the producers of minor items (commodities produced on less than 10 percent of the farms). The method involves surveying a starter list and requesting names and addresses of individuals known, by the respondent, to produce the minor or specialty agricultural item. New names found are similarly surveyed and the snowballing is continued for several rounds or until no more new names are found. All past work has made limited use of mailed survey methods due to the very low response rates generally obtained. The telephone had not been used in past work because (a) the questionnaires used were quite long and (b) it was thought that some respondents would not be willing to give names and addresses of other individuals over the telephone. Thus, most of the data in past snowballing studies have been collected by personal interview.

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REFERENCES


1/ Strand, N. V. [1968] Frame Construction Studies 1966-67, (Unpublished Report on Cooperative Project of the Statistical Reporting Service and Iowa State University).

Strand, N. V., Vogel, F. A. and Moore, R. P. [1969] Frame Construction By the Snowballing Method and Its Evaluation, 1968, (Unpublished Report on Cooperative Project of the Statistical Reporting Service and Iowa State University).

Goebel, J. J. [1969] Estimates For the Population Size Based on a Snowballing Procedure, (Thesis for Master of Science Degree in Statistics, Iowa State University, Ames, Iowa).

The objectives of this project were to: (1) To study ways of increasing the response rate to mailed inquiries and (2) test the feasibility of using the telephone for interviewing respondents in each round of the snowballing technique. Both objectives were aimed at developing ways of reducing the cost of using the snowballing technique to improve list coverage of the desired universe.

## Summary

To improve the mail questionnaire response, an informational pamphlet, assumed to be of interest to the respondent, was mailed to the starter list and to each new name. This procedure did not increase the mailed survey response rate over previous studies. The mailing of a USDA leaflet of interest to beekeepers was particularly ineffective. Adding two additional "interest-type" questions to the short questionnaire did not increase the response rate.

About two-thirds of the mailed survey non-respondents were contacted by telephone. This indicates it is feasible to conduct snowballing studies by telephone. There was no noticeable respondent reluctance to give the information by telephone and none of the persons contacted refused to cooperate.

Results of the study showed that persons interviewed by telephone were more likely to list names of other bona fide beekeepers than were those who returned the mailed questionnaire. However, the average number of names reported, per person reporting names, was higher for the mailed survey respondents.

People who had bees themselves were more likely to report by mail than people who didn't have bees. Those reporters who currently had bees were more likely to list names of other beekeepers than those who did not have them.

The costs of effective snowballing can be reduced by using mail and telephone methods to collect as much of the survey information as possible.

## Procedures

The population sampled was a list of 666 beekeepers obtained by the Oklahoma State Statistical Office. The list was divided into three random groups. Each group received one of three different sets of

materials (See Appendix). A short questionnaire, a medium length questionnaire, or a letter with a USDA leaflet enclosed were the materials used. The two questionnaires and the letter contained space for respondents to list names and addresses of other beekeepers and a place to indicate the approximate number of colonies kept by each individual.

A sample of 150 non-respondents was selected and attempts were made to interview them by telephone. The short questionnaire (Type A) was used for this phase of the study.

## Analyses

The three kinds of materials mailed did not stimulate a large proportion of the sampled individuals to respond to the mailings. The response rates were fairly low for all three methods (See Table 1). Only one mailing was made and reminder cards (which might have increased the response rate) were not sent.

The response rates for Methods A and B, the two versions of the questionnaire, were not significantly different. This indicates that the two additional questions on the Method B questionnaire were not successful in interesting more beekeepers to mail back the questionnaires. Method C obtained a response rate significantly less (one percent level) than either of the other methods. Mailing a USDA leaflet (Method C) of definite interest to beekeepers (See Appendix) did not cause many of them to respond to our request for names of other beekeepers.

This study shows 51.4 and 43.8 percent of the respondents surveyed by methods A and B respectively, listed names and addresses of other beekeepers (See Table 2), while 27.3 percent of the respondents to Method C listed names of other beekeepers.

Considering only respondents reporting other names and addresses, we find for Methods A and B slightly more than three names per report. Method C produced 1.5 names per report.

In general, the attempts to increase the mailed response rate through additional questions of interest to beekeepers (Method B) and through mailing a USDA leaflet of interest (Method C) were not successful. It appears that other techniques for reducing the cost of the snowballing procedure must be found.

A sample was drawn of 150 non-respondents to the mail survey (Methods A and B only) and attempts were made to interview these individuals by telephone. Three interviewers were able to contact 104 of the 150 persons in two days of calling. There were 39 for whom no telephone numbers could be found and 7 who had telephones but could not be found at home during the two days (See Table 3). All 104 persons contacted cooperated by giving the information requested (Type A questionnaire) by telephone. There was no noticeable indication of reluctance on the part of any respondents to give the information over the telephone.

The number of names listed by the telephone respondents was compared with the number of names listed by the mailed survey respondents. Only questionnaires from Methods A and B were used in this comparison since the results from mailing Method C were so poor. The percentage of respondents who listed other names was significantly higher (one percent level) for the telephone interviews (See Table 4). The telephone interviewers had the chance to convince the respondent that it was important to give names of other beekeepers and to explain the purposes of the study. Those mailed survey respondents who gave names of other beekeepers, however, gave more names than the telephone survey respondents, on the average (difference significant at 1 percent level). This could be taken as evidence of reluctance to give names over the telephone. It is likely that the difference occurs because persons who had more interest in beekeeping and knew more beekeepers tended to respond by mail. Those who had less knowledge of other persons keeping bees were non-respondents surveyed by telephone. Also, people responding by mail had more time to think about other names to add to the list.

Table 5 shows the same information given in Table 4, except that the mail and telephone respondents were divided into two groups: (1) those who had bees and (2) those who did not. A chi-square test of independence shows that persons who had no bees were less likely to return the mailed questionnaire than were those persons who had bees. Although some of the groups had a small number of observations, Table 5 also tends to indicate that persons who had bees were more likely to list names of other beekeepers and tended to list more names than respondents who didn't have bees.

The use of the telephone to conduct snowballing studies appears to be feasible. The cost of the method can be reduced significantly by using mail and telephone methods for obtaining names.

## Conclusions

The telephone is an effective and economical alternative for personal visits in non-response follow-up. It yielded fewer names per contact, however, the names produced were more likely to be actual beekeepers. The refusal rate for telephone interviews is very low. About 70 percent of the non-respondents had telephones and were contacted.

No attempt was made in this study to assess the duplication between new names obtained by mail and those obtained by telephone. If significant duplication is present, consideration should be given to terminating with that round of telephone interviews. Succeeding rounds would then be only mail surveys.

Apparently, the use of a questionnaire format (Methods A and B) to solicit names was more effective than an outright appeal with reward (Method C).

Table 1.--Mailing record and response rates, by methods, Oklahoma, 1969

| Method 1/ | Question-naires mailed | Question-naires returned by post office | Question-naires assumed delivered | Question-naires returned by mail | Mail response rate |
|---|---|---|---|---|---|
| | Number | Number | Number | Number | Percent |
| A | 222 | 3 | 219 | 70 | 32.0 |
| B | 222 | 1 | 221 | 64 | 29.0 |
| C | 222 | 0 | 222 | 22 | 9.9 |
| Total | 666 | 4 | 662 | 156 | 23.6 |

1/ Method A - Short questionnaire requesting names and addresses of other beekeepers.

Method B - Modification of Method A with two additional questions on a topic of interest to beekeepers.

Method C - Letter asking for names of beekeepers plus a USDA leaflet of interest.

Table 2.--Beekeeper names listed by mailed survey respondents, by methods, Oklahoma, 1969

| Method 1/ | Questionnaires returned by mail | Percent listing other names | Average number of names listed | |
|---|---|---|---|---|
| | | | All respondents | Respondents listing names |
| | Number | Percent | Number | Number |
| A | 70 | 51.4 | 1.59 | 3.08 |
| B | 64 | 43.8 | 1.39 | 3.18 |
| C | 22 | 27.3 | .41 | 1.50 |
| Total | 156 | 44.9 | 1.34 | 2.99 |

1/ See Table 1.

Table 3.--Record of telephone interviewing, Oklahoma, 1969

| Item | Total |
|---|---|
| | Number |
| Sample size | 150 |
| No telephone | 39 |
| Unable to contact | 7 |
| Contacts made | 104 |
| Refusals | 0 |
| Interviews completed | 104 |

Table 4.--Beekeeper names listed, telephone survey vs. mailed survey (Type A and B questionnaire), Oklahoma, 1970

| Data collection method | Questionnaires completed | Percent listing other names | Average number of names listed | |
|---|---|---|---|---|
| | | | All respondents | Respondents listing names |
| | Number | Percent | Number | Number |
| Mailed | 134 | 47.8 | 1.49 | 3.12 |
| Telephone | 104 | 68.3 | 1.23 | 1.80 |
| Total | 238 | 56.7 | 1.38 | 2.43 |

Table 5.--Beekeeper names listed, by data collection method, by whether or not the respondents had bees, Oklahoma, 1969.

| Data collection method | Questionnaires completed | Percent listing other names | Average number of names listed | |
|---|---|---|---|---|
| | | | All respondents | Respondents listing names |
| | Number | Percent | Number | Number |
| Mail respondents: | | | | |
| Bees | 115 | 52.2 | 1.66 | 3.18 |
| No bees | 19 | 21.0 | .47 | 2.25 |
| Telephone respondents: | | | | |
| Bees | 72 | 76.4 | 1.36 | 1.78 |
| No bees | 32 | 50.0 | .94 | 1.88 |
| All respondents: | | | | |
| Bees | 187 | 61.5 | 1.55 | 2.51 |
| No bees | 51 | 39.2 | .77 | 1.95 |
| Total | 238 | 56.7 | 1.38 | 2.43 |

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OKLAHOMA CROP AND LIVESTOCK REPORTING SERVICE

U. S. DEPARTMENT OF AGRICULTURE
Statistical Reporting Service
OKLAHOMA
STATE BOARD OF AGRICULTURE
Office of Agricultural Statistician, P. O. Box #1095, Oklahoma City, Oklahoma 73101

TYPE A

## BEEKEEPER INQUIRY

Dear Sir:

Your assistance is needed to provide better service to beekeepers in Oklahoma. We are attempting to develop a complete list of all persons keeping bees in order that more information about honey production, prices, and value can be obtained. The summarized information will be available to you and other beekeepers. Thanks for your help. Please return your report to us in the self-addressed envelope, which requires no stamp.

Sincerely,

D. D. Pittman
Agricultural Statistician

1. Do you own or keep any honeybees? Yes ☐ (Go to 2) No ☐ (Go to 3)
2. Please indicate, by check, the size group which fits your operation.
   1-9 Colonies ☐ 10-39 Colonies ☐ 40 or more Colonies ☐
3. Please list beekeepers in your area and estimate their size group if known.

| | No. of Colonies | | |
|---|---|---|---|
| | 1-9 | 10-39 | 40 + |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |

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TYPE B

BEEKEEPER INQUIRY

Dear Sir:

Your assistance is needed to provide better serivee to beekeepers in Oklahoma. We are attempting to develop a complete list of all persons keeping bees in order that more information about honey production, prices, and value can be obtained. The summarized information will be available to you and other beekeepers. Thanks for your help. Please return your report to us in the self-adressed envelope, which requires no stamp.

Sincerely,

D. D. Pittman
Agricultural Statistician

1. Do you own or keep any honeybees? Yes ☐ (Go to 2) No ☐ (Go to 5)
2. Please indicate, by check, the size group which fits your operation
   1-9 Colonies ☐ 10-39 Colonies ☐ 40 or more Colonies ☐
3. What is the condition of colonies? (let normal equal 100 percent)_____ percent.
4. Comments _____

5. Please indicate, by check, the bee and honey reports you want to receive:
   ☐ Colonies of Bees, July (number of colonies on hand, condition of colonies and condition of nectar plants).
   ☐ Annual Honey Summary, January (number of colonies, yield per colony, total production, prices and stocks).
6. Please list beekeepers in your area and estimate their size group if known.

| Name | Address | City | No. of Colonies 1-9 | 10-39 | 40 + |
|---|---|---|---|---|---|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |

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UNITED STATES DEPARTMENT OF AGRICULTURE
STATISTICAL REPORTING SERVICE

TYPE C

Dear Sir:

As a service to the beekeepers of Oklahoma we are forwarding this bulletin to you. If you know of other beekeepers who might be interested in this publication, please advise us in the space provided below. If you no longer keep bees please advise us. The self-addressed envelope provided requires no stamp.

Sincerely,

D. D. Pittman
Agricultural Statistician

| Name | Address | City | No. of Colonies | | |
|---|---|---|---|---|---|
| | | | 1-9 | 10-39 | 40+ |
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